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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NOLAN, SANDRA M

ART UNIT

PAPER NUMBER

1772

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,294

Applicant(s)

DING ET AL.

Examiner

Sandra M. Nolan

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2004 and 14 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-95 is/are pending in the application.
- 4a) Of the above claim(s) 17-91 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-16 and 92-95 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claims

1. Claims 1-3 and 6-95 are pending. Pursuant to applicants' election of 01 April 2003, claims 1-3, 6-16 and 92-95 are before the examiner. See section 3, below.

Withdrawal of Allowability

2. Claims 5, 7, 13 and 15 were said to be potentially allowable in section 4 of Paper No. 9. That allowability is hereby withdrawn in order to apply the new ground of rejection set out below.

Election/Restrictions

3. This application contains claims 17-91, drawn to an invention nonelected with traverse in Paper No. 8 (the response dated 01 April 2003). A complete reply to any final rejection in this application must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claims 17-91 are withdrawn.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 14 October 2003 (Paper No. 10) was considered by the examiner.

Objection/Rejections Withdrawn

5. The objection to claims 5,7,13 and 15 stated in section 4 of the 05 May 2003 office action (Paper No. 9), is withdrawn in order to apply the new rejection below.

6. The 35 USC 103 rejection of claims 1-4, 6, 9-12 and 14 as unpatentable over Ono et al (US 4,752,137), as set forth in section 7 of Paper No. 9, is withdrawn in order to apply the new grounds of rejection below.

7. The 35 USC 103 rejection of claims 8 and 16 as unpatentable over Ono in view of the JP11228957A abstract, as explained in section 8 of Paper No. 9, is withdrawn in order to apply the new grounds of rejection below.

Examiner's Summary of the Base Claims

8. The elected base claims of this case can be summarized as follows:

Claim 1 covers a polymer blend comprising:

- 1 to 99 wt% of a first 1,2-polybutadiene having low crystallinity, being syndiotactic, and exhibiting a first melting point (MP),
- 1 to 99 wt% of a second 1,2-polybutadiene having a higher MP than that of the first 1,2-polybutadiene.

Claim 9 covers a polymer blend having an initial gel content (IGC) and comprising:

- 1 to 99 wt% of a first 1,2-polybutadiene exhibiting a first MP,
- 1 to 99 wt% of a second 1,2-polybutadiene with a higher MP than the first MP,

wherein the blend is irradiated to increase its gel content to a value above its IGC.

Claim 92 covers a polymer blend of crosslinked polybutadienes comprising:

- 1 to 99 wt% of a first 1,2-polybutadiene exhibiting a first MP,
- 1 to 99 wt% of a second 1,2-polybutadiene having a higher MP than that of the first 1,2-polybutadiene.

New Rejections

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 9-16 and 92-95 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Do applicants intend to claim the process of irradiating to increase the blend's gel content and/or process of crosslinking the blend's polymers? The recitation of process steps infers that the process of treating the blends/polymers and not the blends, is the invention.

Please clarify the claims.

Note: In the absence of convincing objective evidence to the contrary, the process features recited in claims 9 and 92, i.e., exposure to radiation and crosslinking, respectively, do not serve to distinguish them from the prior art applied below.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 1-3, 6-7, 9-15 and 92-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ve Speer et al (US 5,310,497) in view of Ryan et al (5,741,452) and applicants' discussions at page 3, lines 19-25 of the specification and at page 7, line 29 through page 8, line 10 of the specification.

The Ve Speer and Ryan patents were cited in Paper No. 10.

Ve Speer teaches that blends containing 70% syndiotactic polybutadiene and 20% atactic polybutadiene (col. 11, line 46 through col. 12, line 1) can be used in oxygen scavenging compositions (title; abstract) when the polymers have crystallinities of less than 30% (col. 4, lines 44-62). The blends are irradiated (col. 12, line 4).

It fails to teach:

- a. crosslinked polybutadienes in blends,
- c. use of polybutadiene blends to make medical products, or
- d. the use of radiation to increase the gel content of polybutadienes.

Ryan teaches that medical tubing is conventionally made from polymer blends (col. 4, line 25) that contain crosslinked polybutadienes (col. 4, line 44). Its blends are readily processed into medical tubing using conventional processes (abstract).

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Applicants have stated, at page 3, lines 19-25, that the exposure of polybutadiene medical devices to radiation for sterilization purposes is known. Such irradiation would be expected to produce the same increases in gel content that applicants discuss at page 7, line 29 through page 8, line 10 of the specification.

The cited references and passages are analogous because they all relate to polybutadienes, their properties and their uses.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the crosslinked polybutadienes of Ryan in the Ve Speer blend compositions and subject those compositions to conventional radiation treatment in order to produce oxygen scavenging medical tubing having improved oxygen stability (per Ve Speer), improved processability (per Ryan) and sterility for subsequent use (per Ve Speer's and applicants' discussions of radiation).

The motivation to employ the Ryan polybutadienes in the combination suggested above is found in its abstract, where the processability of its polymer compositions into tubing is taught.

The motivation to employ radiation treatment in the combination suggested above is found at col. 12, line 4 of Ve Speer and in applicants' specification, where radiation treatment is discussed.

It is deemed desirable to make medical tubing that is processable and that has low oxygen sensitivity and high sterility in order to cheapen the manufacturing process, extend the useful life of the tubing, and render it safe for patient use.

14. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ve Speer, Ryan et al and applicants' discussions, as applied to claims 1-3, 6-7, 9-15 and 92-95 above, and further in view of JP 11228957A (abstract).

Ve Speer, Ryan et al and applicants' discussions are discussed above.

They fail to teach the use of hindered amine stabilizers.

The Japanese abstract is discussed in section 8 of Paper No. 9.

The citations and passages applied in this rejection are analogous because they all deal with polybutadienes.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the hindered amine stabilizers of the Japanese abstract in the compositions and tubing suggested by the combination of Ve Speer, Ryan et al and applicants' discussions, above, in order to stabilize the compositions and tubing suggested by the combination of Ve Speer, Ryan et al and applicants' discussions against heat, oxidation and light.

The motivation to employ the hindered amine stabilizers of the Japanese abstract in the compositions and tubing suggested by the combination of Ve Speer, Ryan et al and applicants' discussions, above, is found in the advantage section of the abstract, where improved heat, oxidation and light stability is discussed.

It is deemed beneficial to make medical tubing having the properties suggested by the combination of Ve Speer, Ryan et al and applicants' discussions as well as improved heat, oxidation and light stability in order to make tubing that is easily produced and shelf stable as well as safe for patient use.

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Response to Arguments

15. Applicant's arguments with respect to claims 1-3 and 6-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication should be directed to the Examiner, Sandra M. Nolan, whose telephone number is 571/272-1495. The Examiner can normally be reached on Monday through Thursday, from 6:30 am to 4:00 pm, Eastern Time.

If attempts to reach the Examiner by telephone are unsuccessful, her supervisor, Harold Pyon, can be reached at 571/272-1498. The general fax number for the art unit is 703/872-9306.



S. M. Nolan
Patent Examiner
Technology Center 1700

SMN/smn
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